

**WHAT IS CLAIMED IS:**

1. A method of compatibilizing an anionic polymeric rheology modifier with cationic materials which method comprises complexing the cationic materials with an anionic complexing agent prior to combining the rheology modifier with the complexed cationic material wherein said anionic complexing agent contains a bulky molecule having an anionic group.

2. A method of claim 1, wherein said bulky molecule in a complexing agent has a molecular weight of at least 1,000.

3. A method of claim 2, wherein said bulky molecule is a polymer.

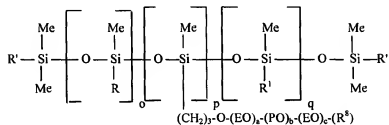
4. A method of claim 3, wherein said polymeric complexing agent is selected from the group consisting of an acrylic copolymer, polyalkylene glycol, polyvinyl alcohol, polyvinyl acetate, polysaccharide, polyurethane and polysilicones.

5. A method of claim 4, wherein said polymeric complexing agents contain an anionic group selected from carboxylate, sulfonate, sulfate, phosphate and phosphonate groups.

6. A method of claim 5, wherein said polymeric complexing agent is a polysilicone.

7. A method of claim 6, wherein said polysilicone is selected from the structure consisting of:

(1)



wherein:

Me is methyl;

R and R' are independently selected from methyl,  $-\text{OH}$ ,  $-\text{R}^7$ , and  $-\text{R}^8-\text{A}$  or  $-(\text{CH}_2)_3-\text{O}-(\text{EO})_a-(\text{PO})_b-(\text{EO})_c-\text{G}$  with the proviso that both R and R' are not methyl,  $-\text{OH}$  or  $\text{R}^7$ ;

R' is selected from lower alkyl  $\text{CH}_3(\text{CH}_2)_n-$  or phenyl where n is an integer from 0 to 22;

a, b, and c are integers independently ranging from 0 to 100;

EO is  $-(\text{CH}_2\text{CH}_2\text{O})-$ ;

PO is  $-\overset{\text{CH}_3}{\underset{|}{\text{C}}}(\text{CH}_2\text{CHO})-$ ;

o is an integer ranging from 1 to 200;

q is an integer ranging from 0 to 1000;

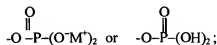
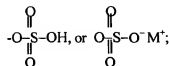
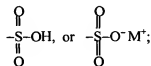
p is an integer ranging from 0 to 200;

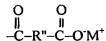
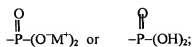
$\text{R}^7$  is aryl, alkyl, aralkyl, alkaryl, or alkenyl group of 1-40 carbons;

$\text{R}^8$  is hydrogen or  $\text{R}^7$  or  $\text{C}(\text{O})-\text{X}$  wherein X is aryl, alkyl, aralkyl, alkaryl, alkenyl group of 1-40 carbons, or a mixture thereof;

$\text{R}^9$  is divalent group selected from alkylene of 1-40 carbons which may be interrupted with arylene group of 6 to 18 carbons or an alkylene group containing unsaturation of 2 to 8 carbons;

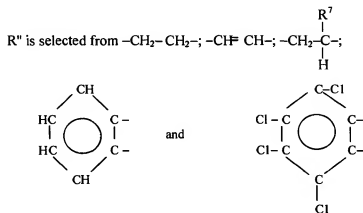
A and G are independently are selected from



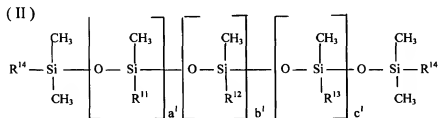


where

R'' is a divalent group selected from alkylene of 1-40 carbons which may be interrupted with an arylene group of 6 to 18 carbons or an alkylene group of 2 to 8 carbons, and is preferably selected from the

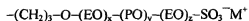


where M is Na, K, Li,  $\text{NH}_4$ ; or an amine containing alkyl, aryl, akenyl, hydroxyalkyl, arylalkyl or alkaryl groups;



wherein

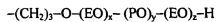
R<sup>11</sup> is selected from lower alkyl having one to eight carbon atoms or phenyl,  
R<sup>12</sup> is



M is a cation and is selected from Na, K, Li, or  $\text{NH}_4$ ;

x, y and z are integers independently ranging from 0 to 100;

$\text{R}^{13}$  is

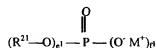


$\text{R}^{14}$  is methyl or hydroxyl;

$a^1$  and  $c^1$  are independently integers ranging from 0 to 50;

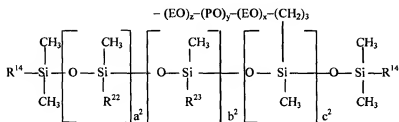
$b^1$  is an integer ranging from 1 to 50;

( III )



wherein

$\text{R}^{21}$  is



$a^2$  is an integer from 0 to 200;

$b^2$  is an integer from 0 to 200;

$c^2$  is an integer from 1 to 200;

$\text{R}^{14}$  is as defined above;

$\text{R}^{22}$  is selected from  $-(\text{CH}_2)_6\text{CH}_3$  and phenyl;

n is an integer from 0 to 10;

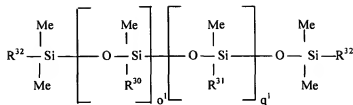
$\text{R}^{23}$  is  $-(\text{CH}_2)_3-\text{O}-(\text{EO})_{x^1}-(\text{PO})_{y^1}-(\text{EO})_{z^1}-\text{H}$ ;

$x^1$ ,  $y^1$  and  $z^1$  are integers and are independently selected from 0 to 20;

$e^1$  and  $f^1$  are 1 or 2 with the proviso that  $e+f=3$ ;

M is selected from H, Na, K, Li, or  $\text{NH}_4$ ; and

(IV)



wherein;

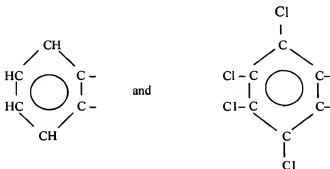
Me is methyl;

$\text{R}^{30}$  and  $\text{R}^{32}$  independently are  $-\text{CH}_3$  or

$-(\text{CH}_2)_3-\text{O}-(\text{EO})_a-(\text{PO})_b-(\text{EO})_c-\text{C}(\text{O})-\text{R}^{33}-\text{C}(\text{O})-\text{OH}$ ;

with the proviso that both  $\text{R}^{30}$  and  $\text{R}^{32}$  are not  $-\text{CH}_3$ ;

$\text{R}^{33}$  is selected from  $-\text{CH}_2-\text{CH}_2-$ ;  $-\text{CH}=\text{CH}-$ ;  $-\text{CH}_2-\text{C}(\text{R}^{37})-\text{H}$ ;



$\text{R}^{37}$  is alkyl having from 1 to 22 carbon atoms;

$\text{R}^{31}$  is selected from lower alkyl (having 1-4 carbons),  $\text{CH}_3(\text{CH})_n-$  and phenyl;

$n^1$  is an integer from 0 to 8;

$a^1$ ,  $b^1$  and  $c^1$  are integers independently ranging from 0 to 20;

EO is an ethylene oxide residue  $-(\text{CH}_2\text{CH}_2-\text{O})-$ ;

PO is a propylene oxide residue  $-(\text{CH}_2\text{CH}(\text{CH}_3)-\text{O})-$ ;

$o^1$  is an integer ranging from 1 to 200;

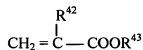
$q^1$  is an integer ranging from 0 to 500.

8. A method of claim 5, wherein the anionic rheology modifier is a polymer prepared from ethylenically unsaturated monomers at least 10% by weight of which is a monomer containing carboxylic group.

9. A method of claim 8, wherein said polymer contains at least 25% by weight of repeating units derived from a monomer containing carboxylic group.

10. A method of claim 9, wherein the rheology modifier anionic polymer is selected from the group consisting of

(A) a polymer obtained from the polymerization of one or more monomers represented by the formula



wherein  $\text{R}^{43}$  is hydrogen or an alkyl group having from 8 to 30 carbon atoms and

$\text{R}^{42}$  is a substituent selected from the class consisting of hydrogen, halogen, hydroxyl, lactone, lactam and the cyanogens ( $-\text{CN}$ ) groups, monovalent alkyl radicals, monovalent aryl radicals, monovalent aralkyl radicals, monovalent alkaryl radicals and monovalent cycloaliphatic radicals; and

(B) a crosslinked copolymer obtained from the copolymerization of a monomeric system comprising:

a) from about 10 to about 97% by weight of at least one ethylenically unsaturated mono- or dicarboxylic acid;

b) from 0 to about 80% by weight of at least one ( $\text{C}_1\text{-C}_{30}$ ) alkyl or aralkyl ester of an ethylenically unsaturated mono- or dicarboxylic acid;

c) from about 0.5 to about 80% by weight of at least one associative monomer which is an ester of formula



wherein

J is an ethylenically unsaturated acrylic residue, optionally containing an additional carboxylic group, wherein, optionally, said additional carboxylic group may be esterified with a ( $\text{C}_1\text{-C}_{20}$ ) aliphatic alkyl group;

$\text{R}_1$  is an alkyl, alkphenyl or aralkyl residue having from 1 to 30 carbon atoms;

$\text{R}_2$  is hydrogen, methyl or ethyl;

r is comprised between 0 and 50;

s is comprised between 0 and 30;

d) from 0 to about 20% by weight of at least one ethylenically unsaturated amide;

e) from about 0.2 to about 20% by weight of at least one diester between a polyoxyalkyleneglycol or an emulsifier having at least two free OH-groups and an ethylenically unsaturated carboxylic acid, as the crosslinking agent; and

f) from 0 to about 20% by weight of at least one ethylenically unsaturated sulfonic acid.

11. A method of claim 10, wherein  $R^{43}$  is hydrogen or an alkyl group from 10 to 22 carbon atoms and  $R^{42}$  is hydrogen or methyl.

12. A composition of matter comprising a cationic material complexed with an anionic complexing agent that contains a bulky molecule having an anionic group and an anionic polymeric rheology modifier.

13. A composition of claim 12, wherein said bulky molecule is a polymer

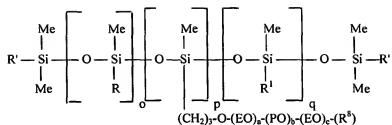
14. A composition of claim 13, wherein said polymeric complexing agent is selected from the group consisting of an acrylic copolymer, polyalkylene glycol, polyvinyl alcohol, polyvinyl acetate, polysaccharide, polyurethane and a polysilicone.

15. A composition of claim 14, wherein said polymeric complexing agent contains an anionic group selected from carboxylate, sulfonate, sulfate, phosphate and phosphonate groups.

16. A composition of claim 15, wherein said polymeric complexing agent is a polysilicone.

17. A composition of claim 16, wherein polysilicone is selected from the structures consisting of

(I)



wherein:

Me is methyl;

R and R' are independently selected from methyl,  $-\text{OH}$ ,  $-\text{R}^7$ , and  $-\text{R}^2-\text{A}$  or  $-(\text{CH}_2)_2-\text{O}-(\text{EO})_a-(\text{PO})_b-(\text{EO})_c-\text{G}$  with the proviso that both R and R' are not methyl,  $-\text{OH}$  or  $\text{R}^7$ ;

$\text{R}^1$  is selected from lower alkyl  $\text{CH}_3(\text{CH}_2)_n-$  or phenyl where n is an integer from 0 to 22;

a, b, and c are integers independently ranging from 0 to 100;

EO is  $-(\text{CH}_2\text{CH}_2\text{O})-$ ;

PO is  $-\begin{array}{c} \text{CH}_3 \\ | \\ (\text{CH}_2\text{CHO}) \end{array}-$ ;

o is an integer ranging from 1 to 200;

q is an integer ranging from 0 to 1000;

p is an integer ranging from 0 to 200;

$\text{R}^7$  is aryl, alkyl, aralkyl, alkaryl, or alkenyl group of 1-40 carbons;

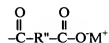
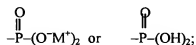
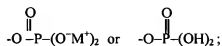
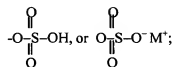
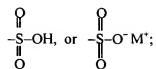
$\text{R}^8$  is hydrogen or  $\text{R}^7$  or  $\text{C}(\text{O})-\text{X}$  wherein X is aryl, alkyl, aralkyl, alkaryl, alkenyl group of 1-40 carbons, or a mixture thereof;

$\text{R}^2$  is divalent group selected from alkylene of 1-40 carbons which may be interrupted with arylene group of 6 to 18 carbons or an alkylene group containing unsaturation of 2 to 8 carbons;

A and G are independently are selected from

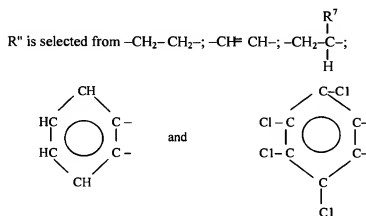






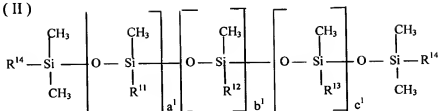
where

R'' is a divalent group selected from alkylene of 1-40 carbons which may be interrupted with an arylene group of 6 to 18 carbons or an alkylene group of 2 to 8 carbons, and is preferably selected from the

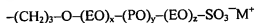


where M is Na, K, Li, NH<sub>4</sub>; or an amine containing alkyl, aryl, akenyl, hydroxyalkyl, arylalkyl or alkaryl groups.

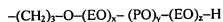
( II )



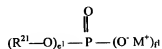
wherein

R<sup>11</sup> is selected from lower alkyl having one to eight carbon atoms or phenyl,R<sup>12</sup> isM is a cation and is selected from Na, K, Li, or NH<sub>4</sub>;

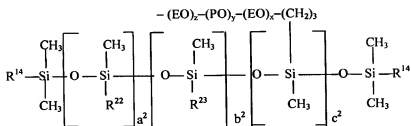
x, y and z are integers independently ranging from 0 to 100;

R<sup>13</sup> isR<sup>14</sup> is methyl or hydroxyl;a<sup>1</sup> and c<sup>1</sup> are independently integers ranging from 0 to 50;b<sup>1</sup> is an integer ranging from 1 to 50;

( III )



wherein

R<sup>21</sup> isa<sup>2</sup> is an integer from 0 to 200;b<sup>2</sup> is an integer from 0 to 200;c<sup>2</sup> is an integer from 1 to 200;R<sup>14</sup> is as defined above;

$R^{22}$  is selected from  $-(CH_2)_nCH_3$  and phenyl;

$n$  is an integer from 0 to 10;

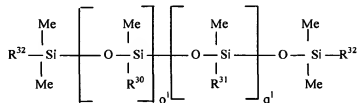
$R^{23}$  is  $-(CH_2)_3-O-(EO)_{x1}-(PO)_{y1}-(EO)_{z1}-H$ ;

$x^1$ ,  $y^1$  and  $z^1$  are integers and are independently selected from 0 to 20;

$e^1$  and  $f^1$  are 1 or 2 with the proviso that  $e+f=3$ ;

$M$  is selected from H, Na, K, Li, or  $NH_4$ ; and

( IV )



wherein;

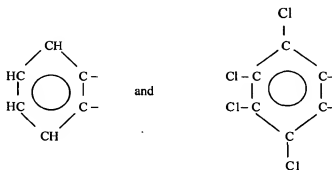
Me is methyl;

$R^{30}$  and  $R^{32}$  independently are  $CH_3$  or

$-(CH_2)_3-O-(EO)_a-(PO)_b-(EO)_c-C(O)-R^{33}-C(O)-OH$ ;

with the proviso that both  $R^{30}$  and  $R^{32}$  are not  $-CH_3$ ;

$R^{33}$  is selected from  $-CH_2-CH_2-$ ;  $-CH=CH-$ ;  $-CH_2-C(R^{37})-H$ ;



$R^{37}$  is alkyl having from 1 to 22 carbon atoms;

$R^{31}$  is selected from lower alkyl (having 1-4 carbons),  $CH_3(CH_2)_n-$  and phenyl;

$n^1$  is an integer from 0 to 8;

$a^3$ ,  $b^3$  and  $c^3$  are integers independently ranging from 0 to 20;

EO is an ethylene oxide residue  $-(CH_2CH_2-O)-$ ;

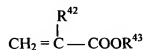
PO is a propylene oxide residue  $-(CH_2CH(CH_3)-O)-$ ;

$o^1$  is an integer ranging from 1 to 200;

$q^1$  is an integer ranging from 0 to 500.

18. A composition of claim 17, wherein the anionic rheology modifier is selected from the group consisting of

(A) a polymer obtained from the polymerization of one or more monomers represented by the formula

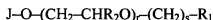


wherein  $\text{R}^{43}$  is hydrogen or an alkyl group having from 8 to 30 carbon atoms and

$\text{R}^{42}$  is a substituent selected from the class consisting of hydrogen, halogen, hydroxyl, lactone, lactam and the cyanogens ( $-\text{CN}$ ) groups, monovalent alkyl radicals, monovalent aryl radicals, monovalent aralkyl radicals, monovalent alkaryl radicals and monovalent cycloaliphatic radicals; and

(B) a crosslinked copolymer obtained from the copolymerization of a monomeric system comprising:

- a) from about 10 to about 97% by weight of at least one ethylenically unsaturated mono- or dicarboxylic acid;
- b) from 0 to about 80% by weight of at least one ( $\text{C}_1\text{-C}_{30}$ ) alkyl or aralkyl ester of an ethylenically unsaturated mono- or dicarboxylic acid;
- c) from about 0.5 to about 80% by weight of at least one associative monomer which is an ester of formula



wherein

J is an ethylenically unsaturated acrylic residue, optionally containing an additional carboxylic group, wherein, optionally, said additional carboxylic group may be esterified with a ( $\text{C}_1\text{-C}_{20}$ ) aliphatic alkyl group;

$\text{R}_1$  is an alkyl, alkphenyl or aralkyl residue having from 1 to 30 carbon atoms;

$\text{R}_2$  is hydrogen, methyl or ethyl;

r is comprised between 0 and 50;

s is comprised between 0 and 30;

- d) from 0 to about 20% by weight of at least one ethylenically unsaturated amide;

e) from about 0.2 to about 20% by weight of at least one diester between a polyoxyalkyleneglycol or an emulsifier having at least two free OH-groups and an ethylenically unsaturated carboxylic acid, as the crosslinking agent; and

f) from 0 to about 20% by weight of at least one ethylenically unsaturated sulfonic acid.

19. A composition of claim 18, wherein  $R^{43}$  is hydrogen or an alkyl group from 10 to 22 carbon atoms and  $R^{42}$  is hydrogen or methyl.

20. A hair conditioner comprising a composition of claim 16.

21. A hair conditioner of claim 20 which is a crystal clear formula.

22. A hair conditioner of claim 20 which is a clear styling gel formula.

23. A skin moisturizer comprising a composition of claim 16.

24. A hair shampoo comprising a composition of claim 16.

25. A household product comprising a composition of claim 16.

26. A hand sanitizing gel comprising a composition of claim 16.